

No. \_\_\_\_\_

MESSRS : \_\_\_\_\_

## PRODUCT DRAWING

CUSTOMER'S PRODUCT NAME : \_\_\_\_\_

TDK PRODUCT NAME : DC/AC INVERTER UNIT  
CXA-0345

DATE : \_\_\_\_\_



TDK Corporation

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DWG.No.

CTR-0941-D

- The specifications may be changed without any notice.
- When placing orders, please confirm "Specifications" or Product Drawing" through TDK sales or distributors.

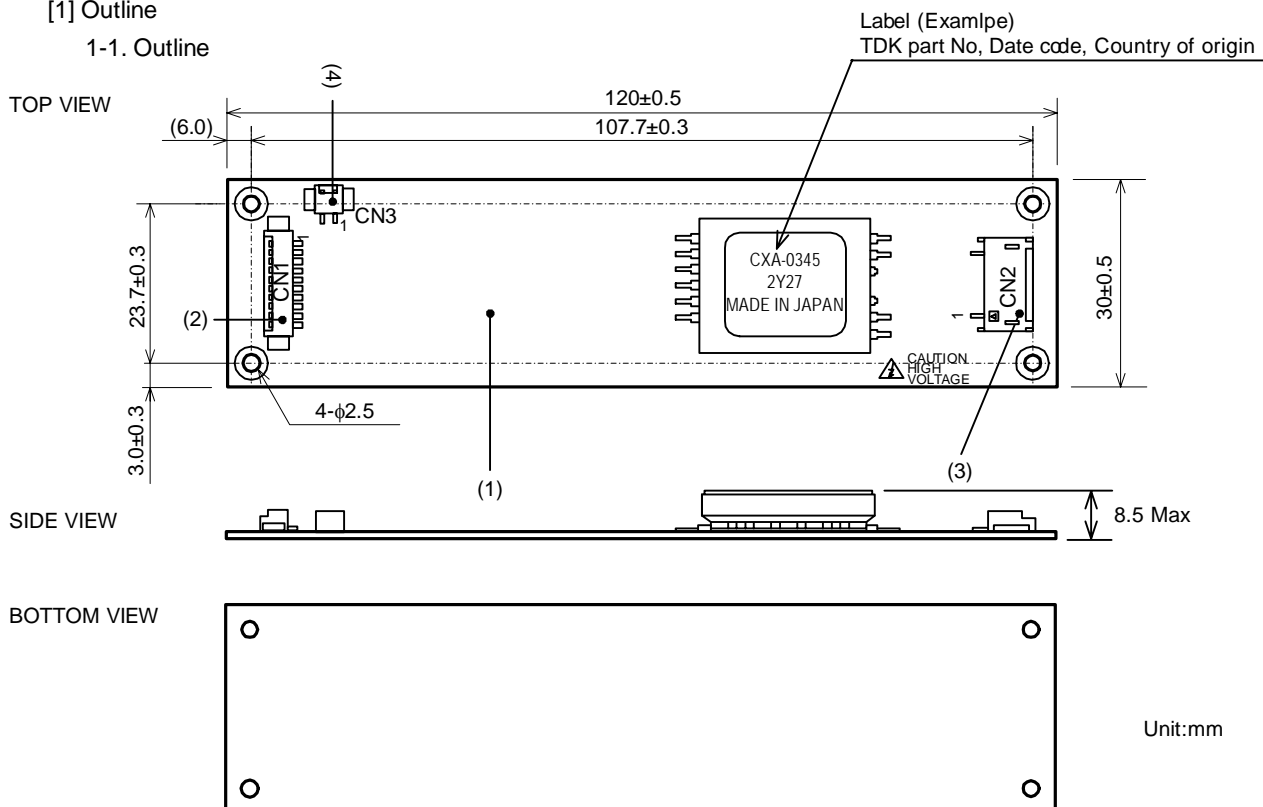
TDK is now under developing new DC to AC Inverter CXA-0345 which is designed for automotive LCD use. The architecture includes automatic brightness control with NTC themistor in cluded in the LCD for wide operate temperature as -30 to 85 deg-C.

The CXA-0345 will distribute 6.5mA rms. under the normal conditio n, and 9mA rms between -30 to 50 deg-C. (Reference LCD is LQ065T9DR51 made by Sharp)

A complete dimming interface with minimum and maximum setti ngs provide a approximately 10% to 100% flexibility. Wide input voltage is available from 8V to 16V and protection circui t will cover reverse input or surge.

# [1] Outline

## 1-1. Outline



Symbols	Product name	Quantity	material	Notes
(1)	PCB	1	Glass epoxy (FR-4) Composite (CEM-3)	UL94V-0 t=1.0
(2)	CN1	1	53261-1071	MOLEX
(3)	CN2	1	SM02(8.0)B-BHS-1	JST
(4)	CN3	1	53261-0271	MOLEX

No.	MATERIALS NAME	QU	MATERIAL	REMARK
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## 1-2. Connector Configuration

### Input side CN1

Pin No.	Symbols	Ratings	Function	Notes
CN1-1	VIN	8 V to 16 V	Power source	
CN1-2	VIN			
CN1-3	GND	0 V	Ground	
CN1-4	GND			
CN1-5	VRMT	0/5 V	Remote function	High Active
CN1-6	VBR-INT	0 V to 3 V	Dimming signal input terminal when the internal oscillator is used	
CN1-7	VBR-EXT	TBD	Dimming signal input terminal for external control	this function is not available now.
CN1-8	BOOST	0/5 V	Output current change signal input terminal	High : Output current is 8.5 mArms (TYP.) Low : Output current is (6.5) mArms
CN1-9	FRQ-EXT	0/5 V ON-DUTY 10 %	External signal input terminal for synchronized drive frequency.	If you do not use , this PIN(CN1-9) please make open.
CN1-10	FRQ-SW	0/5 V	Drive frequency change signal input terminal.	High : Frequency is 75kHz Low : Frequency is 60kHz as default

### Output side CN2

Pin No.	Symbols	Ratings
CN2-1	VHIGH	700Vrms 9.0mArms
CN2-2	N.C.	-
CN2-3	VLOW	(0.6V)

### Input side CN3

Pin No.	Symbols	Ratings
CN3-1	TH1	GND
CN3-2	TH2	(5V)

Note1. For circuit connection, please refer to test circuit diagram [4].

Note2. Please use minimum of 2mm clearance (all directions) between inverter high voltage area and any conductors.  
Please refer to mechanical drawing for marking of high voltage area.

Note3. Open voltage (strike voltage) is measured across the transformer secondary winding at no load as the reading at the output connector would be less than the actual value.

Note4. If the start up voltage falls below Cold Cathode Tube strike voltage, the CCFL will not light up easily specially at lower ambient temperature. Please review mounting instruction to avoid any abnormal operation due to coupling/leakage capacitance of inverter high voltage area to any surrounding conductor.

Note5. Please check your lamp characteristic for minimum operational current and set the limit point in your design to avoid flickering and/or abnormal operation.

Note6. For proper operation of circuit protection (fuse or IC), Please use minimum of 3A capacity for input power supply.

Note7. Since these technical data are development targets, we cannot guarantee the characteristic of a product.

Note8. Specifications sometimes become changes by this sample for the development goods.

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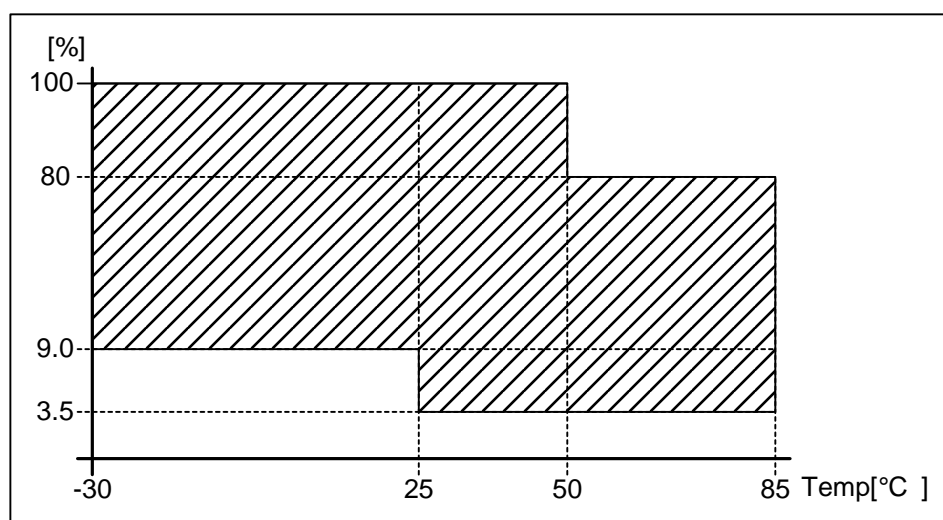
[2] Absolute maximum ratings

Items	Symbols	Specification	Unit	Notes
Input Voltage	VIN	0~16	V	
	VRMT	0~5		
	VBR-INT	0~3		
	VBR-EXT	0~5		
	BOOST	0~5		
	VBR-EXT			
	FRQ-EXT			
	FRQ-SW			
Output Power	Po	8	W	
Operating Temp. range	Ta	-30~85	°C	A Maximum wet ball temperature is 38°C. No dew.
Storage Temp. range	Ts	-40~85	°C	A Maximum wet ball temperature is 38°C. No dew.

[3] Electrical specifications

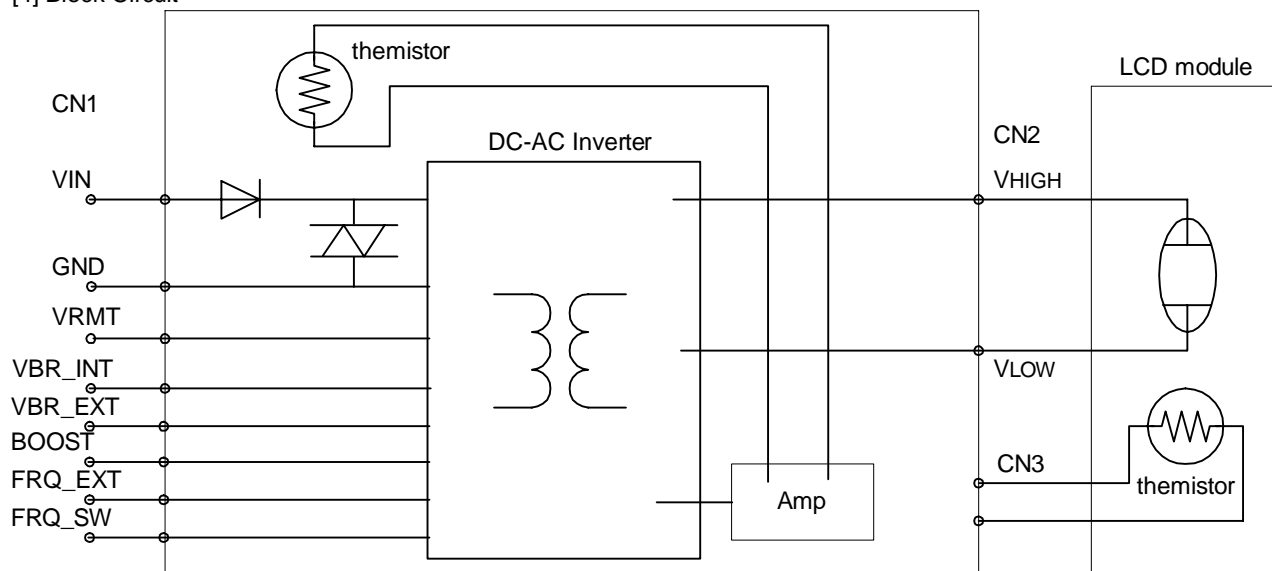
Items	Symbols	Conditions					Specification			Unit
		Vin [V]	Ta [°C]	RL [kΩ]	Vrmt [V]	Vbr [V]	MIN.	TYP.	MAX.	
Output Current (See Note 9.)	Iout (MAX)	8.0 to 16.0	-30 to +50	100±2	5±0.05	3.0	7.0	8.0	9.0	mA <sub>rms</sub>
	50 to +85		5.5				6.5	(7.5)		
	Iout (MIN)	12±0.05	25			0	(0.5)	1.0	(2.0)	
Input Current	Iin			-	600	800	mA <sub>dc</sub>			
Frequency	F1				3.0	50	60	70	kHz	
	F2(Duty)		120			150	180	Hz		
Open Circuit Voltage	Vopen	8±0.05	-30 to +85	∞			1.8	2.0	(2.2)	kV <sub>rms</sub>

Note9. Available Area (LQ065T9DR51)



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#### [4] Block Circuit



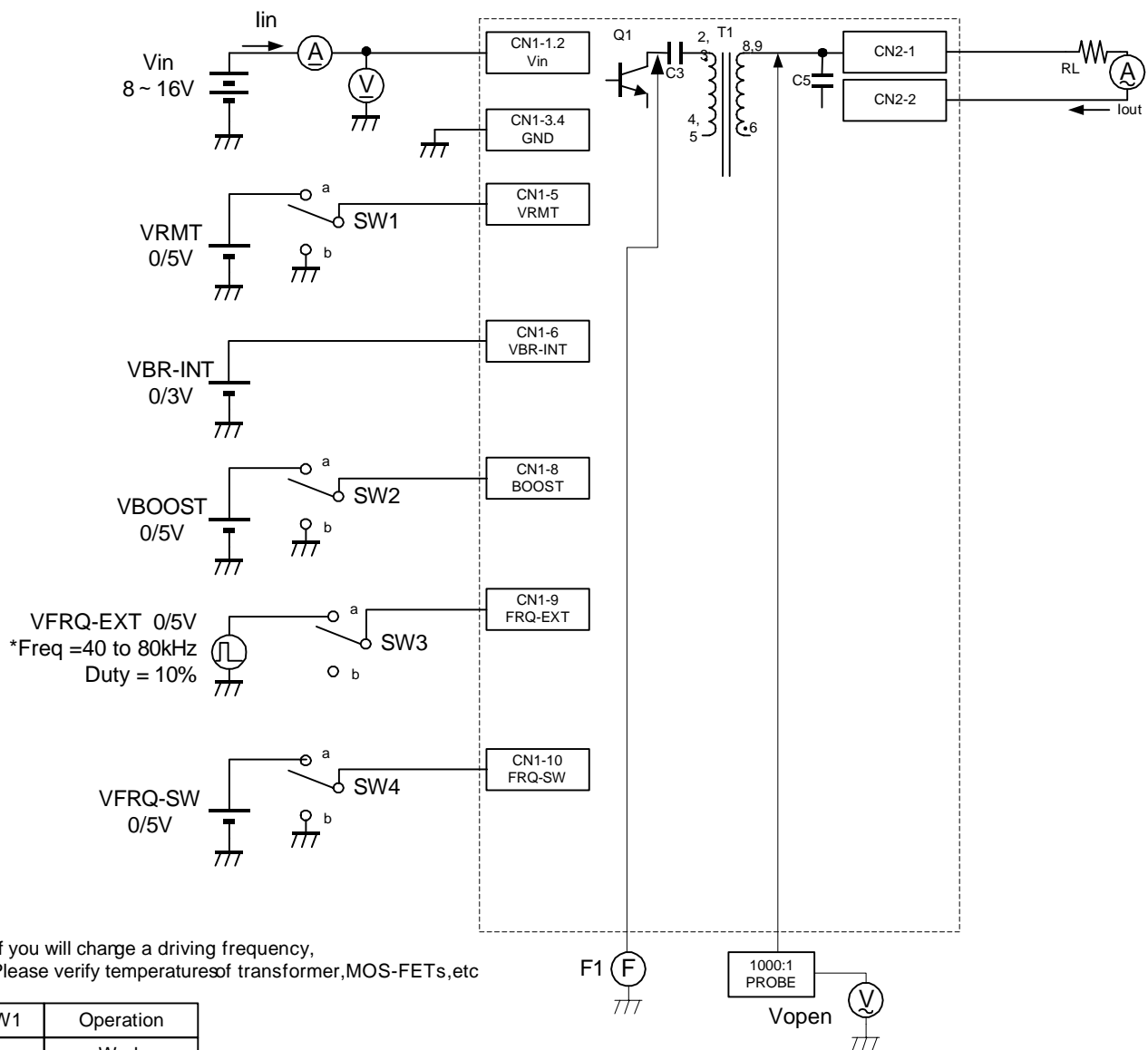
#### [5] Reliability test

Following test items are assured.

Items	Conditions	Judgement
Low Temp. (Non operational)	-30°C 240h	Electrical and apperance should be in the spec.
Low Temp. (operational)	-30°C 240h Load cond.:TYP	
High Temp. (Non operational)	85°C 240h	
High Temp. (operational)	85°C 240h Load cond.:TYP	
Heat shock	-30°C↔85°C 30min.Each 200 Cycles	
Humidity (Non operational)	50°C 90~95%RH 240h	
Vibration	10~57Hz Amplitude0.75mm 58~500Hz 1G Sweep:11min 60min each axis X,Y,Z	
Shock	100G 11ms Harf-sine pulse 1 time each axis ±X,Y,Z	Smoke or fire should be within 60 seconds. Smoke should be as little as smoke of cigarettes.
Open/Short Test	Each parts : Open/Short(1FAILURE) VIN=12V Power supply capacity : 4.2A MIN.	

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# [6] Terminal connection diagram



SW1	Operation
a	Work
b	Doesn't work
OPEN	Doesn't work

SW2	Operation
a	Boost Mode
b	Normal Mode
OPEN	Low Mode

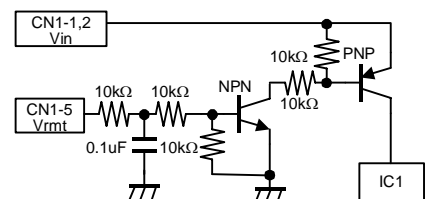
Boost Mode as output current is 8.5 [mA].  
Normal Mode as output current is 6.5 [mA].

SW3	Operation
a	Synchronized drive to external signal
b	Asynchronous drive

SW4	Operation
a	High Freq -drive
b	Normal Drive
OPEN	Normal Drive

High Freq -drive as drive frequency is 75 [kHz].  
Normal Drive as drive frequency is normal (60 [kHz]).

VRMT : Internal circuit



Test equipments

- Digital Multi Meter
- DC Current Meter
- True RMS. Meter
- Frequency Counter
- High Frequency Current Meter
- 1000:1 High Voltage Probe

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